

No. VI. November 16th, commenced its southeastwardly progress from Lake Superior (nearly due southeast) to Boston, passing over the latter place on the evening of the 16th, with heavy snow.

No. VII. Was perhaps the most remarkable continental cyclone of which the Signal Office observations furnish any details. It was generated about mid-day of the 16th, in Northern Georgia, and at once assumed a threatening aspect. During the night of the 16th and morning of the 17th, it steadily advanced to the vicinity of Wilmington, making about two hundred and forty miles in twelve hours, or about twenty miles an hour. Its course was thence northeastward along the inshore margin of the Gulf stream, which it tenaciously followed to latitude 43° north, whence it struck off into the Bay of Fundy, and thence to the mouth of the St. Lawrence river. All along, its track was marked, from Norfolk to Halifax and Father Point, by fierce gales, and the incoming vessels reported fearful seas off the coast. At Norfolk the barometer fell to 28.86 inches with rapidly shifting northeast, north, and northwest winds of high velocity on the 17th. Chimneys and fences were blown down, and the shipping in the harbor in many instances dragged their anchors. In the Chesapeake bay it was extremely severe. At Cape May the wind rose to forty miles, and the barometer fell to 28.76, with very heavy sea, reported by pilots from outside the worst gale known for years. At New Haven, on the morning of the 18th, the barometer fell to 28.72, (with increasing storm,) and at Wood's Hole to 28.60, and 28.61 at Boston, and 28.49 at Portland, Maine—the lowest observed barometers at the last-named points since they became signal stations. At Eastport, Maine, at about 6 a. m., on the 18th, the cyclone attained terrific force, its wind blowing 64 miles an hour. Its progress over the Canadian districts to the northward and eastward was equally violent. Its whole course was marked by heavy rain and snow, and its cyclonic indraught extended from the Middle Atlantic coast to the Upper Lakes.

No. VIII, First appeared in the Middle Missouri Valley on the 20th, and moved east to Toledo, whence its course was northeastward, and it soon disappeared.

No. IX. Was also of minor importance, having begun in Northern Lake Superior, and soon disappearing to the northeastward.

No. X. Appears to have been generated near Santa Fe on the 22d, and thence moved toward Western Texas, from which locality, on the 23d, it advanced into the Lower Ohio Valley. Its course thence was in nearly a straight line to Halifax, where it is lost sight of. It was preceded by much rain and snow on the Lakes, and high winds on the New England coast.

Nos. XI and XII First appeared in the Northwest, on the 23d and 26th of November, respectively, and moved first southeastwardly to Michigan and the Lower Lakes, and thence northeastwardly, with brisk but not very high winds, and frequent rains and snows.

ANTI-CYCLONIC AREAS.

There have been eight decided areas of high barometer passing over the United States during the past month. These anti-cyclonic areas have first appeared in the Rocky Mountain region, and advanced southeastwardly. It is observable that as the

season progressed they have selected pathways of higher latitude; and moreover, their intensity has increased. As these barometric waves have advanced and spread out from the Northwest and West, toward the Alleghanies; the pressure rather increased than diminished. Their front has been distinguished as well by low temperatures, heavy snows and rains, as by high barometer readings; and generally they have given rise to high northerly winds in their front, and high southerly winds in their rear, the atmospheric mass drawing around the crest in the direction of the hands of a clock. The very high pressure of the 27th–30th of November while in the Northwest, by retarding the advance of the storm-centre on its western side, until the pressure over the Rocky Mountains could accumulate, apparently explains the violence of the storm that has since passed over the Lakes. The course of these waves may be discerned on Map No. 2 by the isobaric lines.

TEMPERATURE.

The November temperature has been much lower than usual in New England; and generally lower over the whole country east of the Rocky Mountains. In the Lower Mississippi, the Lower Missouri valleys, and the Gulf States the normal temperature has prevailed. The variation from the normal in the Ohio valley and Tennessee has been very little— $1^{\circ} 2'$ below. The thermometric means will be found on Map No. 2, which gives the isothermal lines. The lowest temperature reported (except from mountain stations) was -22° at Pembina.

PRECIPITATION.

Map No. 3 gives approximately the rainfall for the different sections this side of the Rocky Mountains. The marginal table on the map explains where there has been abnormal excess or deficiency. The official report from Yankton, Dakota, shows that there has been hardly any appreciable rainfall in that section during the entire month. The greatest precipitation was in Southeastern Massachusetts and near Galveston.

RIVERS.

The Red river was highest above low-water mark on the 25th, when its rise was 13 feet 3 inches. The Missouri reached its highest between the 20th and 27th. The Upper Mississippi on the 28th, when it was five feet above low-water mark at St. Paul, and 8 feet 6 inches at St. Louis. At Cairo, on the 29th, the Mississippi maximum was 14.9 above low-water. At New Orleans, on the 1st, it was 13 feet and 4 inches below high-water mark. The Cumberland, at Nashville, and the Ohio, at Cincinnati, on the 28th, were over twenty feet above low-water.

The lowest fall of the Ohio was on the 12th, when at Cincinnati it was 8 feet; that of the Mississippi on the 19th, at Cairo, 6 feet 6 inches; that of the Red river on the 20th, at Shreveport, 6 feet 3 inches.

PECULIAR PHENOMENA.

The display of auroras in the Lake region does not seem to have been as frequent or as brilliant as usual; nor have the November cyclonic disturbances been as numerous or as marked as usual during the past month. At New York, on the 22d, the peculiar arrangement of cirrus clouds, known as the "Polar Bands," was reported by the Obser-